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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/706,431 | 11/12/2003 | B. Raghava Reddy | 2002-IP-007973U1 | 7146 |

28857 7590 08/04/2005
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EXAMINER

FULLER, BRYAN A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 3676 | |

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,431

Applicant(s)

REDDY ET AL.

Examiner

Bryan A. Fuller

Art Unit

3676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 19-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-31 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/12/03 & 4/29/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1 - 18, drawn to a process for cementing a subterranean formation, classified in class 166, subclass 293.
 - II. Claims 19 - 31, drawn to a cement composition used in subterranean formations, classified in class 106, subclass 823.
2. The inventions are distinct, each from the other because: Inventions II and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product can be used for building or construction material, building blocks, coating (spray on coating on sides of buildings), walkways, roads (can be concrete/cement), tile, swimming pools (another subterranean zone) concrete repair of driveway, or garages.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Craig Roddy on 7/28/2005 a provisional election was made with out traverse to prosecute the invention of Group I claims 1 - 18. Affirmation of this election must be made by applicant in replying to this Office action.

Art Unit: 3676

Claims 19 - 31 are withdrawn from further consideration by the examiner, 37

CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 – 6 and 17 - 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Villar et al (6,060,535).

With respect to claim 1: Villar et al teaches in column 2, line 1 – column 3, line 54 the process for cementing a subterranean formation, comprising;

- (a) forming a cement composition comprising a cement and one or more beads combined with the cement; and
- (b) introducing an inert gas phase to the cement composition.

With respect to claim 2: Villar et al teaches in column 10, lines 57 – 65 wherein the cement composition further comprises a mixture of foam and foam stabilizing surfactants.

With respect to claim 3: Villar et al teaches in column 5, line 63 – column 12, line 20 wherein step (b) reduces an elastic modulus of the cement composition by from about 5% to about 90%.

Art Unit: 3676

With respect to claim 4: Villar et al teaches in column 3, lines 12 – 40 wherein the beads are selected from the group consisting of cenospheres, glass spheres, ceramic spheres, and combinations thereof.

With respect to claim 5: Villar et al teaches in column 2, lines 26 – 31 wherein the cement is a hydraulic cement.

With respect to claim 6: Villar et al teaches in column 3, lines 41 – 54 wherein the introducing the inert gas phase comprises one or more of the following methods:

- (i) adding a gas generating material to the cement composition;
- (ii) adding a porous material to the cement composition; and
- (iii) injecting gas directly into the cement slurry.

With respect to claim 17: Villar et al teaches in column 2, line 26 – column 12, line 20 wherein the porous material comprises openings in which air is disposed.

With respect to claim 18: Villar et al teaches in column 6, lines 61 – 67 wherein the inert gas phase is present in the cement composition in an amount effective to maintain a density of the cement composition in a range of from about 8 to about 23 lb/gal when one or more of the beads break.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7 – 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Villar et al in view of Burkhalter et al (4,450,010).

With respect to claim 7: Villar et al teaches the features as previously claimed except for displacing the cement composition into a well bore in contact with the subterranean formation. Burkhalter et al teaches in column 1, lines 6 – 13 the process of displacing the cement composition into a well bore in contact with the subterranean formation. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Villar et al's invention by displacing the cement composition into a well bore in contact with the subterranean formation in view of Burkhalter et al. The motivation for this combination is that the generation of gas in the cement controls the emission and flow of gas from the formation into the borehole or well annulus.

With respect to claim 8: Villar et al teaches the features as previously claimed except for wherein the gas generating material is a nitrogen generating material, and further comprising introducing an oxidizing agent to the cement composition, the oxidizing agent being capable of activating the nitrogen generating material. Burkhalter et al teaches in column 2, line 8 – column 3, line 3 the process wherein the gas generating material is a nitrogen generating material, and further comprising introducing an oxidizing agent to the cement composition, the oxidizing agent being capable of activating the nitrogen generating material. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Villar et al's invention by including the gas generating material is a nitrogen generating

Art Unit: 3676

material, and further comprising introducing an oxidizing agent to the cement composition, the oxidizing agent being capable of activating the nitrogen generating material in view of Burkhalter et al. The motivation for this combination is that the generation of gas in the cement controls the emission and flow of gas from the formation into the borehole or well annulus.

With respect to claims 9 - 11: Villar et al teaches the features as previously claimed except for the process of adding the gas generating material and the oxidizing agent either one prior the other and prior to displacing the cement composition, then adding the other during the displacement, or adding both simultaneously. Burkhalter et al teaches in column 7, lines 46 - 53 the process of adding the gas generating material and the oxidizing agent either one prior the other and prior to displacing the cement composition, then adding the other during the displacement, or adding both simultaneously. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Villar et al's invention by adding the gas generating material and the oxidizing agent either one prior the other and prior to displacing the cement composition, then adding the other during the displacement, or adding both simultaneously in view of Burkhalter et al. The motivation for this combination is that the generation of gas in the cement controls the emission and flow of gas from the formation into the borehole or well annulus.

With respect to claim 12: Villar et al teaches the features as previously claimed except for the process of using a specific nitrogen gas generating material. Burkhalter et al teaches in column 3, lines 13 - 52 the process of using a specific nitrogen gas

Art Unit: 3676

generating material. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Villar et al's invention by using a specific nitrogen gas generating material in view of Burkhalter et al. The motivation for this combination is that the generation of gas in the cement controls the emission and flow of gas from the formation into the borehole or well annulus.

9. Claims 14 – 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Villar et al in view of Heathman (5,996,693).

With respect to claims 14 - 16: Villar et al teaches the features as previously claimed except for the process of using aluminum powder as the specific gas generating material to produce hydrogen. Heathman teaches in column 3, lines 3 - 8 the process of using aluminum powder as the specific gas generating material to produce hydrogen. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Villar et al's invention by using aluminum powder as the specific gas generating material to produce hydrogen in view of Heathman. The motivation for this combination is that this allows the generation of gas in a wellbore which is deep, has a high bottom hole temperature, penetrates weak formations having high potential for gas flow into the well bore and was drilled using an oil based drilling fluid.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Villar et al and Burkhalter et al as applied to claim 8 above, and further in view of Dillenbeck, III (5,613,558).

With respect to claim 13: Villar et al and Burkhalter et al teach the features as previously claimed except for the use of a specific oxidizing agent. Dillenbeck, III teaches in column 2, line 41 – column 3, line 6 the process wherein a specific oxidizing agent is used. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Villar et al's and Burkhalter's inventions by using a specific oxidizing agent in view of Dillenbeck, III. The motivation for this combination is that the specific oxidizing agent destructs the retarder and serves to accelerate the setting process of the cement.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan A. Fuller whose telephone number is (571) 272-8119. The examiner can normally be reached on M - Th 7:30 - 5:00 and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian E. Glessner can be reached on (571) 272-6843. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3676

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Brian E. Glessner
Supervisory Patent Examiner
Art Unit 3676

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